

COMPARITIVE STUDY OF THE EFFICACY OF THREE DIFFERENT CHELATING AGENTS AS IRRIGANTS ON INTRA-RADICULAR DENTIN: A SCANNING ELECTRON MICROSCOPIC EVALUATION

Abstract:

Introduction: This in-vitro study compared the efficacy of three different chelating agents used as irrigants in the apical, middle and coronal thirds of straight root canals.

Methods: Eighty human permanent maxillary incisors and canines were selected. The samples were then randomly divided into two control groups I&II (n=5) and six experimental groups III-VIII (n=8) and the root canals instrumented with hand files followed by protaper rotary files with X-smart endomotor (Dentsply Maillefer, Ballaigues, Switzerland) as per the manufacturers recommendations. Subsequently the apical size was standardised by manual instrumentation by using a hand instrument of size 35/02%. The irrigant was delivered using a 30- gauge side vent MAX-I-PROBE needle (Dentsply RINN, USA) at the working length. Each canal was irrigated with one of the following solutions: 17% EDTA , 5%, 10% and 17% Phytic acid, and 5%, 10% and 17%, Citric acid Solution along with 5.25% NaOCl as a initial rinse. The samples were then dehydrated and prepared for scanning electron microscopic examination(SEM) and analysed **Results:** Evaluation by SEM showed no significant differences among test irrigants in removing the smear layer. The GP IV was efficient in removing the smear layer and no significant difference when compares with GP II .

Conclusions: In conclusion, the protocols used in this study based on the results the use of phytic acid as a final rinse irrigant seems promising. Further evaluation in a clinical setting is recommended.

keywords;

Smear layer, Final rinse, Citric Acid, Chelating Agents, scanning electron microscopy